

Appl. No. 10/694,593
Response dated 1/9/06
Reply to Office action of 10/14/2005

REMARKS/ARGUMENTS

Reconsideration of the application is requested.

Claims 1-21 remain in the application and are subject to examination. No claims have been amended, added or canceled. Claims 1-19 have been allowed.

In "Claim Rejections - 35 USC § 102", item 2 on page 2 of the above-identified Office Action, claims 20 and 21 have been rejected as being fully anticipated by U.S. Patent No. 6,162,741 to Akasaka et al. (hereinafter Akasaka) under 35 U.S.C. § 102(b).

As will be explained below, it is believed that the claims were patentable over the cited art in their original form and, therefore, the claims have not been amended to overcome the references.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claim 20 calls for, *inter alia*, a method for selectively oxidizing a metallization structure having at least one

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silicon layer to be oxidized and at least one tungsten layer
which is not to be oxidized, which comprises the steps of:

performing a treatment step which includes subjecting
the metallization structure to a mixture of hydrogen and
water and supplying heat;

subjecting the metallization structure to a nonaqueous
hydrogen-containing substance, before and, optionally,
after the treatment step; and

during the treatment step, setting a supply of the heat
such that a temperature of the metallization structure
is increased from a defined temperature to a process
temperature.

Claim 21 calls for, *inter alia*, a method for selectively
oxidizing a metallization structure having at least one
silicon layer to be oxidized and at least one tungsten layer
which is not to be oxidized, which comprises the steps of:

performing a treatment step which includes subjecting
the metallization structure to a mixture of hydrogen and
water and supplying heat; and

subjecting the metallization structure to a nonaqueous
hydrogen-containing substance, immediately before and,
optionally, after the treatment step.

The Akasaka reference discloses a semiconductor device and
manufacturing method therefor. Fig. 5 of the Akasaka method,
which is relied upon by the Examiner as teaching the method
of claims 20 and 21, in pertinent part calls for:

Introducing the wafer into the reaction tube in Step 1;
Evacuating the reaction tube in Step 2;

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Raising the temperature in Step 3;

Reducing in Step 4;

Raising the temperature in Step 5;

Maintaining a uniform temperature of 800° C in Step 6; and

Introducing H₂O and H₂ while maintaining the temperature of 800° C in Step 7.

As indicated above, claim 20 of the instant application states that during the treatment step, a supply of the heat is set such that a temperature of the metallization structure is increased from a defined temperature to a process temperature.

However, this step is clearly not disclosed in Akasaka. The treatment step as defined in claim 20 of the instant application is the step in which the metallization structure is subjected to a mixture of hydrogen and water and heat is supplied. In Akasaka, the treatment step is that identified as step 7 of Fig. 5 and discussed between column 8, line 63 and column 9, line 7 of the reference. It can be clearly seen that in step 7 of Fig. 5 of Akasaka the temperature is constantly maintained at 800° C. There is not the slightest hint in the figures or description of Akasaka that the temperature may be increased from a defined temperature to a process temperature during the treatment step.

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Therefore, claim 20 of the instant application is clearly neither anticipated by nor obvious over Akasaka.

As is also indicated above, claim 21 of the instant application calls for subjecting the metallization structure to a nonaqueous hydrogen-containing substance, immediately before and, optionally, after the treatment step.

However, this is clearly not disclosed in Akasaka. According to Fig. 5 of Akasaka, the metallization structure is subjected to a non-aqueous hydrogen-containing substance, namely $H_2 + N_2$ in Step 4. Since Step 7 is the treatment step, the metallization structure is subjected to a non-aqueous hydrogen-containing substance before the treatment step in Akasaka.

However, the metallization structure is not subjected to a non-aqueous hydrogen-containing substance (in Step 4) immediately before the treatment step (in Step 7). More specifically, according to Fig. 5 of Akasaka, after Step 4, in which the metallization structure is subjected to a non-aqueous hydrogen-containing substance, Steps 5 and 6 are carried out in which the metallization structure is subjected to N_2 . It is only after Steps 5 and 6 that the treatment in

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Step 7 of subjecting the metallization structure to the mixture of hydrogen and water is carried out. There is no hint in the figures or in the description of Akasaka of omitting Steps 5 and 6.

Therefore, claim 21 of the instant application is also neither anticipated by nor obvious over Akasaka.

Clearly, Akasaka shows neither increasing a temperature of the metallization structure during the treatment step as recited in claim 20, nor subjecting the metallization structure to a nonaqueous hydrogen-containing substance immediately before the treatment step as recited in claim 21, of the instant application.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claims 20 and 21. Claims 20 and 21 are, therefore, believed to be patentable over the art.

In view of the foregoing, reconsideration and allowance of claims 20 and 21 and the issuance of a Notice of Allowance for claims 1-21 are solicited.

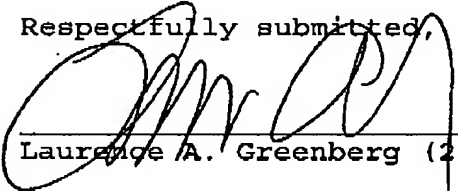
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In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate receiving a telephone call so that, if possible, patentable language can be worked out.

If an extension of time is required, petition for extension is herewith made. Any extension fee associated therewith should be charged to the Deposit Account of Lerner and Greenberg, P.A., No. 12-1099.

Please charge any other fees that might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner and Greenberg, P.A., No. 12-1099.

Respectfully submitted,



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LAG/bb
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